

# Richmond Refinery LPS Bulletin – Reliability

## TK-400 Shutdown Due to Gasket Failure (Steam Leak)



Impact ERM: 33060

### Location:

Richmond Refinery – North  
ISOMAX – TKC Recycle  
Gas Compressor

### Contact Information:

Scott Shapiro  
510-242-3834  
[Scott.Shapiro@Chevron.com](mailto:Scott.Shapiro@Chevron.com)

### Reference:

Investigation 19897

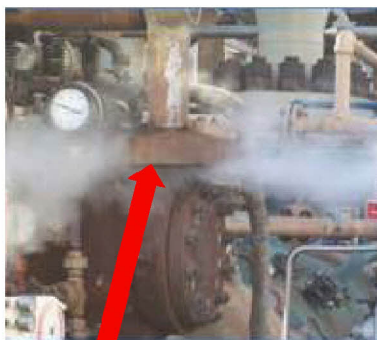


Photo of steam leak at the TK-400 inlet steam valve assembly gasket/cover

### Tenets of Operations Violated:

Tenet #10 – Always involve the right people in situations where there is uncertainty when completing high criticality work.

### Incident Description:

On February 19<sup>th</sup>, 2012 a steam leak was discovered at the inlet steam valve assembly gasket/cover of K-400, which caused 150# steam to be released into the surrounding area. The leak was severe enough the machine was shut down. This type of steam leak had the potential to be both a high level reliability incident as well as a safety incident. Due to the machine being shutdown proactively both potential consequences were mitigated/minimized.

### Investigation Findings:

- 1) Gasket found in the split line was incorrect for the service.
- 2) During the previous overhaul, the asbestos gasket (original) had been replaced with a standard paper sheet type gasket.
- 3) No MOC was completed for this gasket type change.
- 4) The Gasket was installed by the Original Equipment Manufacturer employees and the materials were provided by Chevron.

### Lessons Learned / Business Practices:

- 1) Gasket selection was not reviewed by the proper experts due to a lack of knowledge of the impact of using these types of paper gaskets in hot steam service.
- 2) The selected gasket material was not adequate for the elevated temperature service in which it was installed.
- 3) There was no information readily available containing the proper gasket type or torque specs required.

### What Worked Well:

- 1) Operations reacted quickly to recognize the risk and shut down the turbine.

### Recommendations:

- 1) Add specific engineered gasket information and torquing procedures to Maximo work orders for future TK-400 work.
- 2) Recognize the risk of changing gasket material on high temperature equipment.
- 3) Emphasize the requirement of the MOC process at any time that materials have changed.

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